GRAIN

PLANT OPERATION AND MAINTENANCE

JUNE · 1940

KNOW YE ALL MEN BY THESE PRESENTS

YOU'VE heard about these fancy dinner parties that some folks have. You come all starched up stiff as a baked potato covered with melted butter and sit around all evening saying "Yes, isn't it?" "Really," "Lovely party" and other such tiny gems of eloquence. You have to be very careful not to use the wrong fork on the chops or the wrong spoon on the grapefruit. You know the kind.

Well, sir, know ye all men by these presents, when you're getting up a doings like that never let two doctors sit side by side, or two lawyers or two bankers. Know why not? Just as sure as you're born, you put two men with the same headaches within shouting distance of each other and they'll be talking shop in no time at all. And they'll be talking it in pure Choctaw instead of English as far as anybody else is concerned. It'll spoil the whole show.

No man's trade talk makes sense to any other trade, and you can't mix a banker's headaches with a merchant's any more than cats and dogs. Result is, you've got to keep those fellows apart if you want to have a party. It isn't exactly the place for talking shop.

But there is a place where you can get together with the boys who have the same headaches you've got. Chances are the boys will be just as glad to see you as you are to talk to them. That's why they've joined up with their fellow sufferers in the Super's Society. You can find your kindred spirits among the Society's members just like the others did. And you can enjoy your evening spent with the boys who speak your language, appreciate the contributions they have made to the industry and help them with your suggestions. Write to the Secretary for an application blank and let him put you in touch with your local chapter.

SOCIETY OF GRAIN ELEVATOR SUPERINTENDENTS

Board of Trade Building

Chicago, Illinois

Editorial

WE'LL PUT THE COOLIES TO SHAME

DOWN in Washington the other day the people of the commonwealth were given to understand that there was going to be no eye-winking at the wage and hours law just because of the need for rapid defense preparations. Just because a plant has to handle huge quantities of materials as quick as a flash doesn't mean that Walsh-Healey hours are going to be lengthened. No sir, eight hours a day, five days a week.

But these days men in plants are just as vital to the national defense as men in trenches. In fact, even more vital. What good is a man in a trench without ten planes above him, six tanks around him and plenty of food to eat? Men in industry serve the same national purpose that moves men to enlist in the front-line service. Yet their privileges are infinitely greater.

Suppose we're in the trenches. It's Friday night. Five o'clock comes—so what? We stand the old pack in a corner and check out 'til Monday morning.

Here we are again. We're billeted in a stable. It smells. How it smells. So what? We're not required to put up with unfavorable working conditions. So we paint a sign and start picketing the place, "This battalion is unfair to organized defense."

Unfortunately we lose a little ground the first few days while we're getting into the swing of it. We retreat. Nobody notices it, but we retreat across a state line. Aha! Interstate commerce. So now we get minimum wages and you can't subtract for board and room, either.

Of course, the army could escape all this if they would pay over $30 a week and give each man discretionary powers so that he could be classed as an executive.

The fact of the matter is that the army probably won't have to do that. The chances are that the soldiers will fight as readily and as regardless of self as they have always fought. And in the plants and factories, too, labor will pitch in from morning 'til night seven days a week handling the stuff as fast as it comes in. In fact, the coolies are going to have to look out for their reputations when our wartime industries really start rolling. Laws or no laws, these family quarrels of the American nation will never interfere with the organization of America for defense.

GRAIN, Board of Trade, 141 W. Jackson Boulevard, Chicago, Ill. Telephone Wabash 3111. A forum for operative and mechanical problems in terminal and sub-terminal grain handling and processing plants. Published monthly on the tenth, $1.00 per year. DEAN M. CLARK, Publisher; JOE MOSEY, Editor; WERNER HAUPTLI, 56 W. 45th Street, New York, Murray Hill 2-8763.

With Men Under Arms, Fields Still Unplowed

Grain Is Scarce In Europe

Where Mechanized Troops Have Ravaged the Land

By Joseph G. Mosey

TODAY France has fallen and the Chancellor of the Third Reich has succeeded in unifying the continent of Europe under one command. Yet under that command is a people that is not only resentful and conspiring, but also hungry.

For no matter how long he may be in matters of tanks and Stukas, Hitler is short on grain. His conquered lands face tragic food shortage during the fall and winter of 1940.

Thirty million men under arms in Europe today and each man supplied with arms and ammunition by the work of two more remove a total of 90 million men from the peaceful but essential tasks of tilling the soil. Added to this shortage of labor must be the severity of the past winter—coldest in history followed by a late spring—and the cumulative effect on food supplies that years of war preparation have had.

The Food Front

▲ As she did in all other preparations for war, Germany led the other nations of the continent in the concentrated exploitation of her farm lands. Seven years ago, only shortly after Hitler's rise to power, a farm program assuming the proportions of a gigantic Food Front was inaugurated to make the Reich self-sufficient and to amass a surplus of grain on which she could rely.

Farmers were subsidized by the government, forbidden to leave their farms and directed down to the last single seed in each spring's planting. Women and children were enlisted in a labor service to aid with the field work; and the traditions of the peasantry, once despised, were newly glorified to make farming the most respected of all vocations. Yet, in spite of this concentrated seven-year effort, the government succeeded in supplying only 80% of those essentials of living that Germany needed to maintain an under-normal standard of living.

Germany Must Import

▲ During a normal year Germany needs to import 48 million bushels of wheat, but during the past nine months she has been able to transport only a fraction of that amount either through the crowded channels of the Danube or through the British blockade from the Argentine. At the beginning of the war her total grain reserves were an announced 300 million bushels in relation to an annual consumption of 800 million. Ten months of war have certainly seen the last of the reserve supply, while no yet-conquered area has had any stock sufficient to replace it.

In Denmark and Norway, although Hitler won sources of meat, milk, cheese and fish, there were no sources of grain. In fact, Norway annually must import some eight million bushels of wheat while the feed for the Danish cattle likewise has had to be imported. In the Lowlands, Belgium with an import of 45 million bushels of wheat annually and the Netherlands with needs for 24 million were a decided liability as far as grain was concerned.

The vast food-producing areas of Poland fell to the Germans last October but these vast areas came equipped with millions of starving Poles who during the peaceful year of 1937 managed to export only 1½ million bushels of wheat. Still, the most productive of Polish wheat lands, the Carpathian Ukraine, fell not to Hitler but to Stalin.

Russia and Famines

▲ Ironically enough, the greatest wheat-producing country in the world (in spite of incomplete figures) is surpassed only by India and China in the severity of its famines. Russia's winter months were marked by a shortage of potatoes and milk and the spring months brought news of the most serious famine since the collectivization of the farms in 1932. Correspondents visiting the country report that peasants are flocking to the cities in search of food that they somehow expect to come from the newly-conquered territories in Finland and Poland. Yet Finland has never had an export surplus of wheat and the little provided by the Polish fields will not go far towards feeding 180 million Russians.

Breadbasket of the European continent has always been the grain-producing areas of the Balkans. Hungary, with 1937 exports over 16 million bushels, has had all able-bodied men in the army during the spring months when they might have been planting grain. Motor cars, farm trucks and tractors have been requisitioned for the use of the army, for Hungary stands in the path of the much-dreaded "March to the East." Because of the small 1939 corn crop and the influx of refugees especially from Poland, Hungary had to introduce governmental control of milling and baking early in February.

Fields Are Unplowed

▲ Rumania, too, fears for her very existence and has dug trenches through the fertile fields of Transylvania (which she took from Hungary) and Bessarabia (which she took from Russia). Nearly two million men are under arms and 100,000 Polish refugees depend on the King for food. In spite of an understanding to supply some 12% of Germany's wheat and barley, Rumania banned exports of these grains, but was forced to relax the ban enough to permit shipments to the Reich. Unplowed fields, unfavorable weather and the terrible fear of both Hitler and Stalin have already made it impossible for Rumania to deliver anything near the 36 million bushels of wheat which she exported in 1937.

Bulgaria in 1937 exported a little over seven million bushels of wheat, mostly to neighboring Greece; while the Jugoslavian crop of 12 million bushels went almost entirely to Italy.

Only 20% of the Italian peninsula is fit land for cultivation, and although Mussolini has reclaimed every swamp and river bottom his country must import 60 million bushels of wheat yearly. Until now the Italian colonies have contributed little to supplement the grain supply gathered in the Balkans.

The French Colonies

▲ From the French colonies of Tunisia (which may fall to Italy) and Algeria, 10 million bushels of wheat were exported in 1937 to supplement the usual deficiency of the French crop. Besides that importation, however, France found need for shipments of eight million bushels from other sources. By far the most frugal people in Europe the French raise grain on thousands of tiny farms and use every available foot of land for cultivation. Yet never has sufficient grain been produced to satisfy even home demands. Added to these demands at the present time are those of 200,000 Spanish refugees, 100,000 German and uncountable numbers of Belgian and Dutch.

During the planting season most of France was under arms with every available hand not carrying a gun, packing shells in munition plants. Desperately the government planned to import 70,000 field workers from the colonies, but whether or not they arrived in time for spring planting has never been announced.

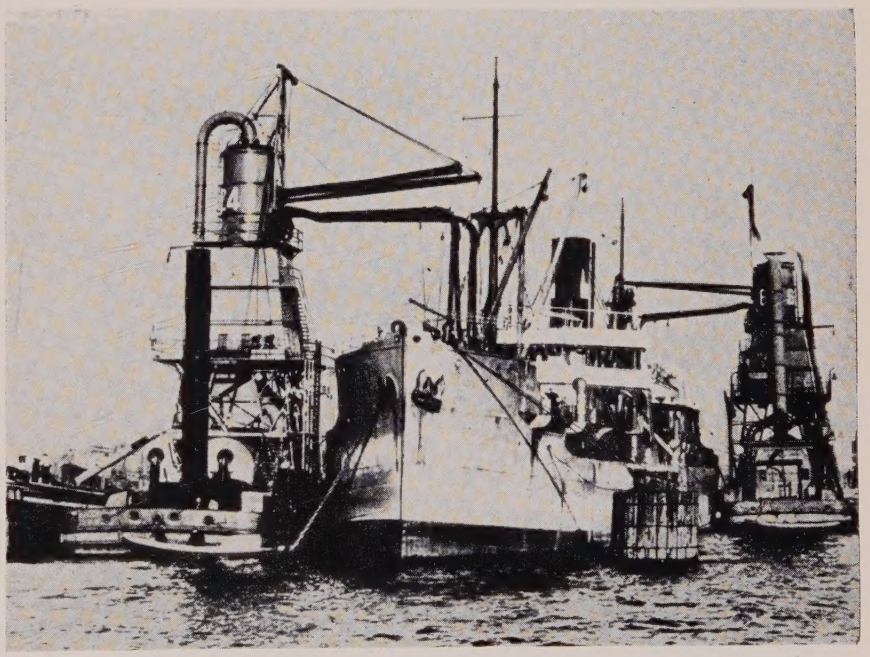
Spain is a country ravaged by three years of civil war. Not a living thing was left rooted to the earth over areas as large as a square mile. The past winter has been grim, with entire villages going days at a time without bread. The wheat yield for this year is forecast at 20% below normal because of the lack of machinery, fertilizer and incentive to reconstruct the desolated fields.

The English Island

▲ The insular United Kingdom of Great Britain and Ireland has never been more than 60% self-sufficient in foodstuffs, but the insular position gives these countries access to the grain supplies in other parts of the world. During normal years an annual 200 million bushels of wheat were shipped to England from world sources; and as long as the navy can keep shipping lanes open, this stream of grain will not be completely cut off. Still England has had to plow under two million acres of grasslands of which nearly all were planted in grain. Some markets have already indicated that no further offers are to be expected.

In direct contrast to the dire scarcity of grain in the European countries, world wheat stocks controlled largely by Canada, the United States, Australia and Argentina reached a record-breakig 5,459 million bushels at the start of the war. And as of July 1st, 1940, that supply will be 250 million bushels larger. In the United States what first appeared to be a rather small crop is now estimated at 489 million bushels of winter wheat, 215 million bushels of spring wheat and a carryover on July 1st of 288 million bushels.

Grain moves into international trade. Through the port facilities of Buffalo, lake shipments from Green Bay, Duluth, Fort William and Chicago consigned to Europe may be transshipped by barge or rail to New York and Philadelphia for export.



Most grain now shipped across the Atlantic is received at Liverpool where pneumatic unloaders lift it from the hold in record time. In this day of distorted trade routes, cargoes from Australia reach England after being transshipped at Baltimore.

The winter of 1940-41 will bring further hunger and hardship to the people of a continent suppressed by force and fear; and the severity of the famine will depend upon the quantity of grain that is forthcoming from the new world.

GRAIN EXPORT

THROUGH SAINT JOHN

By T. C. Macnabb
General Superintendent
Canadian Pacific Railway

THE business of the elevator superintendent is quite an ancient and honorable one. The first superintendent of which I could find any record was a man named Joseph, who, about five thousand years ago, bought up all the wheat for seven years and put it in the elevators. I am told his operating costs have never been approached since. He was 30 years old when he became superintendent, as reported in the Book of Genesis. When the land turned into a dust bowl he sold back his holdings over a period of seven years and then owned all the farms. He was a bright fellow because he rented them for 20 per cent of their produce and did very well, rising to be the first man in the grain business of those days. I am not sure that we should emulate him too closely because as a matter of fact he had some trouble with a lady of those days and got himself in jail and only got out by the aid of a dream book!

In Roman Times

▲ Even in Roman times there were elevator superintendents. Caesar Augustus built the first elevator—at Otium. It just happens that this Italian harbor which was constructed is way inland now because of changes in the shore line, which indicates the trouble that elevator superintendents have. So far we have not had the ocean leave us high and dry.

Most of the grain we all handle, in the north at least, is wheat; and it is interesting to discover why so many people want to have wheat. After all it is only the seed of a grass, a sort of nut-like fruit with a single seed and the shell is so close when it is ripe that it cannot be taken off without breaking up the seed. The toughness of this outer covering has made it possible to store wheat for long periods under all sorts of adverse conditions. It just occurs to us that if bran is so impervious it is doubtful if human beings can eat it. It is all right for a cow, with seven stomachs, but ordinarily with one stomach we cannot get very much out of bran. We might just as well eat coconut shells! Wheat has several colors, from creamy to red, and I am told that in Abyssinia they have a variety that is purple. We have in Egypt still the original type of wheat that was used when Joseph was operating and it is supposed that wheat originated in Asia Minor. There is still a variety of wheat called "mummy wheat" and, occasionally, it is said that samples have been found in the tombs of Egypt and sold to the credulous. Quite certainly this is ridiculous since wheat will not last anything like that length of time. So far as bread wheat is concerned, with which we deal, the immediate ancestor is not exactly known. Everybody wants wheat because it is the best balanced food that will take the most abuse and still give useful nourishment.

Outward Bound

From the moment the harbor at Montreal is closed in the Fall, until it is opened in the Spring the port of St. John runs at full capacity transferring grain from incoming cars to ships that are outward bound for all corners of the globe.

In this article Mr. Macnabb describes the methods and the machinery by which his house loads in 24,000 bushels of grain an hour and loads it out again at the same rate in spite of time and tide. Eleven miles of conveyor belting and 171 bins are used in the process.

At St. John

▲ At Saint John, New Brunswick, we have a port that is ice free the year around. We have two elevators there. So far as the elevators themselves are concerned they are much the same type as those that are familiar to you, being the circular bin type of re-inforced concrete. One of the elevators has the standard unloading arrangement inside of it and the other has a detached unloading arrangement where cars are handled and then conveyed to the elevator from the unloading house.

In general our business is to take grain out of the cars and get it into the ocean-going ships. As these ships are also discharging and taking on cargo at the same time, we have to leave the face of the wharf free for the movement of package freight. That is what necessitated the location of the elevators back from the wharf side.

There is one peculiarity about this Elevator "B" and it is that the bins are small. We have 94 bins that hold 1,500 to 2,000 bushels only and 77 bins that hold 8,000 bushels. The reason for selecting 8,000 bushels is because in marine practice the ships carry what they call a load, and a load is 8,000 bushels. The orders placed upon us are that a ship will take two loads or five loads, or whatever number they want, and we are required to put into the ship multiples of 8,000 bushels, so that when we have grain in the elevator bins that hold just 8,000 bushels this is an advantage. In the larger elevator, which holds one and a half million bushels as against one million for the smaller elevator, there are 24 bins that hold a load each, 8,000 bushels, and 36 bins that hold forty thousand bushels each, which as you see is five loads.

The Standard Way

▲ In Elevator "B" the grain is unloaded from cars in the standard way and is elevated directly to the top of the elevator and through Mayo spouts is discharged to the bins. In the larger elevator there is a car dumper, which is in duplicate, capable of handling two cars separately at the same time. The mechanical dumper picks up the car, elevates it, turns it over on its side and then end to end until practically all the grain is out. The rate is 12 cars of 2,000 bus an hour. This does away entirely with elevator shovellers. The grain is then elevated to the conveyors and travels along the track and across to the regular elevator for loading out subsequently.

Practically all the berths have elevator conveyors upon them. These are carried on steel towers that are about 25 feet high, and on top of the towers there is a corrugated iron gallery inside of which the conveyor belts run. We have a matter of two miles of conveyor galleries and something over eleven miles of belting. All of this belting is electrically driven by motors located at the necessary points. The galleries are all connected by telephones so that the elevator operators will be able to give their instructions directly to the power house. For taking the grain into the ships along the face of the galleries there is a travelling loader which runs upon wheels on the face of the wharf and is connected to the discharge belting. The loading operator stays in the loader and sees

(Continued on page 16)

For Your Bulletin Board

(Courtesy Chicago Board of Fire Underwriters)

Research Foundation's Experiments Provide

New Data for Debate

After Dusts Explode In Controlled Tests

By C. J. Alger

Corn Products Refining Company, Argo, Ill., President, Chicago Chapter, Society of Grain Elevator Superintendents

WHY are men killed in a dust explosion when they are not even in its path?

DO explosions have affinities?

WHAT causes their freakishness?

CAN you determine or alter their course?

JUST how forceful is their resistance to any man-made influence?

ARE the greatest pressures created accompanied with the most flame?

WHAT does a graph of an explosion phenomena look like?

HAVE we lulled ourselves into a false sense of security on our unknown static problem?

WHERE do we go from here in dust explosion prevention—or at least its minimization?

$5555 TO FIND OUT

▲ The Corn Industries Research Foundation is spending $5555 to try to determine the answers to these questions. Tests in two 30-foot, 12-inch standard conveyors, joined by a 6-foot, 30-degree angle, conveyor-equipped choke-trap are really opening our eyes to a lot of new facts. We are utilizing an idle Corn Products Refining Company's building at Argo for this work which is being carried on for us by the well-known Mr. A. H. Nuckolls, veteran Chief Chemical Engineer of the Underwriters' Laboratories.

In reporting on this work before the monthly meeting of the Chicago Chapter of the Superintendents' Society, Mr. Nuckolls revealed some very pertinent data worthy of further study and consideration by everyone associated with the grain handling and grain processing industry.

WHY MEN DIE

▲ For years we have been puzzled by the deaths of men NOT in the direct path of dust explosions. With no signs of burned lungs, no outward indices of even scorching, we all have been stumped for the answer to the loss of lives of those adjacent to such blasts.

We think we have found the answer through analyzing the air following one of our tests. The fumes are most irritating so we determined to find out exactly what were the products of this combustion. All we had to know to answer the above question was that from two to three per cent of carbon monoxide was present. One-tenth of one percent breathed for two minutes produces unconsciousness, one-half of one percent is fatal, two to three percent is instantly deadly.

Carbon monoxide prevents the red corpuscles of the blood from using the oxygen taken into the lungs. The only treatment for a man who has had a trace of it is inhalation of a mixture of 94 percent oxygen and 6 percent carbon dioxide.

AFFINITIES

▲ Affinities are a phase of explosion work upon which some further experimental work is doubtless necessary. In an explosion in the Dextrine Department here starting in the driers and backing up through the cookers, the flame licked off a sample spread out on a nearby laboratory desk, singed off the dust on the outside of a sacked sample of Dextrine in a distant corner, and then shot skyward to "fry" a spot of paint on the ceiling.

We've all seen or heard about a lot of similar freakish propensities of explosions and their recurrence should lead us to some pretty definite conclusions after further study. We feel that more intense scrutiny of the behaviorism of such tendencies will ultimately point the way to currently hidden characteristic potentialities that in turn may unscramble the secret of propagation in the future. This problem does not seem too far akin from the phenomena of a soft ear of corn being driven through a hard telegraph pole during a tornado, for surely some of the conditions surrounding both a tornado and a dust explosion are similar.

NO DETOURS HERE

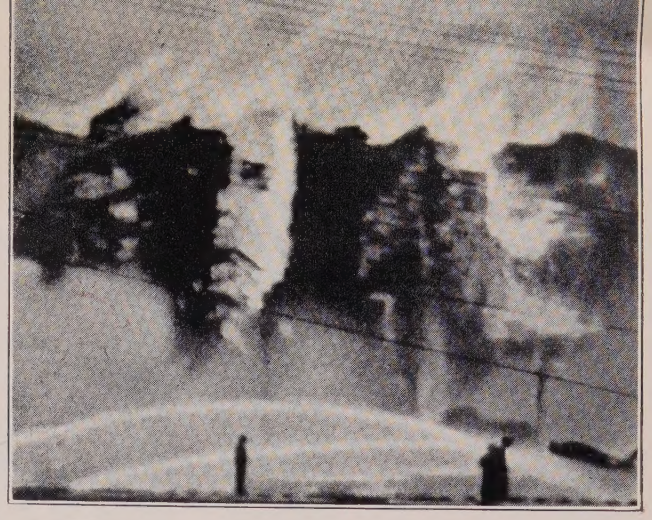
▲ One straw in the wind on the matter of determining the course of a dust explosion seems to indicate that straight-line action is the rule. This is further borne out by reports of explosions throughout the continent within the past two decades wherein blasts have pushed out concrete walls rather than to vent themselves through adjoining openings.

We arrive at this conclusion through the pressure readings found on different positions on the far end of the first conveyor box in which the test explosions are ignited. The dust in the rotating conveyor is ignited with specially prepared "minus-squibb" caps at the hopper end and the blast builds up force at the far end, rebounds in all allowable directions and finally bursts out at the weakest point. Our innumerable devices for recording every action do seem to lead us to believe that an explosion flashes in a single line, of least resistance at the beginning, and as the thunder-cloud streaks into an obstacle it crashes to break out in any and every weak spot anywhere.

The most recent trials show that pressures now are being built up so strong that their force is compressing the corn starch in the 100%-full choke-trap, muscling its way through the starch-choked conveyor, and diffusing itself in the adjoining conveyor. Reason for no fire being carried through the choke-trap—although there has been a little scorching—seems to be the lack of oxygen and the highly dusty atmosphere created when the explosion pressure forces itself through. Pressure readings, not too high, but high enough to be recordable, have burst through the choke-trap and become dissipated into the second conveyor.

NEW HIGH IN PRESSURES

▲ The conclusion seems sound, therefore, that any attempt to alter the course of an explosion must be founded on the knowledge that pressures of 17-pounds over normal per square inch, yes and probably even beyond that (because so far this is the peak within one 30-foot 12-inch conveyor) must be met. Whether or not one should multiply 17-pounds per square inch in a 30-foot conveyor by the dimensions of that part of the plant



Since April an exhaustive study of dust explosions and their behaviors under different conditions has been progressing rapidly at the Argo Plant of Corn Products Refining Company. In this article Mr. Alger reports on the current results of the experiments.

where an explosion might happen to determine the pressures that might be created is only partially problematical, for the more space then the more compression area that can be built up.

One thought seems evident: That is that an explosion would seem to need a wall venting area equal in dimensions to that of the cross-section in which it is confined up to Dr. D. J. Price's rule of one square foot of venting area for each confined 80-cubic feet of enclosed area.

One odd observation made was that the greatest pressures experienced were NOT accompanied by the largest volume of flame. Compared with some of the pressures one-third as great, the volume of accompanying flame and the amount of damage done to the iron-enforced conveyor box does not seem to work in any noticeable ratio. We progressively vary the amount of starch fed from the hopper into the conveyor, add compressed air in the feed hopper to be sure of a constant flow, but to date have not discerned any fixed flame-reaction.

GIVES WAY AT VARIOUS SPOTS

▲ We have arranged this equipment so that the blown-out conveyor lids may be quickly replaced in order that as many tests can be run in a day as possible. It is interesting to note that the explosions, the pressures, the spots the explosions blow out and the volume of flame seem to have no established relationship. An explosion of low pressure may blow out two places while one of higher recorded pressures may push up the iron-enforced lids in only one spot and then only a few inches. When we created the 17-pounds of pressure the reading at the hopper end was 13 pounds and the conveyor lids gave away in the approximate middle. Of course the difference in pressures was due to the effect of inertia.

GRAPH SHOWS VACUUM

▲ We are also recording the rate of rise of the pressures, too. As another point of interest, and we will publish them with our full report upon conclusion of our tests, is that the graph of each explosion has its own distinctive characteristics. Some are like mountain peaks, others like the swell of the seas, some almost have curlycue tops, others are painfully straight.

Some of the more interesting graphs of late have shown a very definite negative pressure which almost equals the positive pressure readings. Just the other day a six pounds per square inch explosion produced nearly as much negative (vacuum) reading.

Armed with this data, which we will carry to further conclusions, doubtlessly further explosion phenomena can eventually be explained and such riddles as the complete dissolution of an employee solved. Heretofore we have only theorized that the tremendous positive and negative pressures have wrought asunder even the slightest trace of a workers' ring which certainly would not be as perishable as his flesh.

BABES ON STATIC

▲ According to tests conducted at the Underwriters' Laboratories we are "babes in arms" on this subject of static. Blowing dust through a tube has produced as high as 9,000 volts. It seems to make no difference what grain or grain product we used we could be sure of generating from 3,000 to 5,000 volts. Just the friction alone causes the static to be built up and that high a voltage is ample to ignite most anything flammable.

Not only did we record these voltages, but we found that even electrically bonded joints, with the ducts all properly grounded, permitted the generation of from 4,000 to 5,000 volts of static. Even the dust beyond the ducts held a substantial amount of charge, because dust, of course, is not a conductor. Perhaps painting ducts with rubber paint would solve this problem.

In an effort to ground static we even equip all our belts with a metal screen comb to take off the charge. This is in addition to grounding all moving equipment.

We feel the industry is still in the dark on its static problem.

EMULATE ACTUAL CONDITIONS

▲ Someone is going to ask about the weather conditions and the relation of the intensity of the explosions thereto. Both our equipment and our tests have so far been run to emulate actual conditions and in our final report a full account of the weather will be taken. Damp days do effect our explosions, for we find we need more starch to produce the same results when the atmosphere is muggy. This may bring some new thoughts to light on the part of our readers, as there seems to be a pretty well fixed impression that the industry generally has most of its explosions on muggy days. Statistically this impression is incorrect.

For over ten years we have been using choke-traps similar to those being experimented with in several dangerous locations in our Argo plant. Millions of pounds of starch go over them every day—so far without any mishap.

CORN AND FEED DUSTS

▲ Upon the conclusions of this series of experiments, provided we have enough monies to carry on, we are going to continue the tests using corn, feed, dusts, etc. And if other agencies wish to carry on from where we leave off we will gladly co-operate with them. We know there is some difference between the explosive qualities of wheat and corn, for instance, and between corn and the products of corn, but not a great deal.

We are primarily interested in trying to confine any explosion we might have to one spot—without propagation. We invite you all to come out to Argo during the two months of making tests that remain, not, necessarily, to see a seething 7-foot flash of flame, but for any further ideas we may jointly develop.

C

SA

Did
Ever
HARD

So If You
In Mind, Who

Cracks D
Prevalent. W
More Water T
Trouble You

Why Not
Wrong, You'll
Would You N
30 Years Of E
Put It To Wo

Our Inspe

Call in **BEN J. MANY**

UCKOO

'S WHO?

he Little Bird Call You?

LY!

Don't Look At Your Building With A Critical Thought Going To Be The Little Cuckoo To Tell You About It?

Occur! They Progressively Become Worse And More r Is The One Cause Of All Deteriorative Action, So The t Enters Through The Face Of Your Concrete, The More Expect.

t Us Make An Inspection With You? If There's Nothing Glad To Know It. And If There *IS* Something Wrong Also Be Glad To Know That? . . . Here's Where Our erience May Effect A Big Savings For You. Why Not

on Will Cost You Nothing So Why Not Write Us Today?

ORPORATION **30 N. LA SALLE ST. CHICAGO, ILLINOIS**

THE STEEL BIN PROGRAM
FOR STORED CORN

By F. Peavey Heffelfinger
Chairman, National Grain Trade Council

A current release by the Department of Agriculture reports that there is now a total of 60 million bushels of corn stored in 33,300 steel bins scattered over ten states. Inspected May 31st, this grain was found to grade 97.6% No. 3 or higher, the Department said.

In this article, Mr. Heffelfinger discusses the wider aspects of the program and the economic consequences of storing large quantities of grain outside of established terminal elevators.

IN THE fall of 1938 the Commodity Credit Corporation made loans available to farmers on corn on the ear, in cribs, on the farm at 57c per bushel. Under this program loans were taken by farmers on approximately 222,000,000 bushels. In addition to this, the farmers resealed from the 1937 crop approximately 35,000,000 bushels, making a total of approximately 257,000,000 bushels of sealed corn. These loans came due on August 1, 1939, but the Government later extended the period to August 1, 1940.

At the expiration of the loan the farmer had three alternatives:

1. To reseal the corn on his farm either on the ear or after shelling, and the Commodity Credit Corporation would allow the farmer 7c per bushel for restoring until August 1, 1940. The farmer thereby retained title to the corn in case the market should go up to a point where he could sell, pay off his loan, and have some equity.
2. The farmer could shell and haul to a country elevator and still retain equity and pay said country elevator storage charges. (Please note here that the farmer could not ship the corn to a terminal elevator and store it and retain title.)
3. The farmer could deliver the corn to the Commodity Credit Corp. and relinquish title.

Special Rates Granted

▲ Starting as early as May, 1939, the Commodity Credit Corporation was in touch and held conferences with representatives of the Terminal Elevator Grain Merchants Association relative to the handling and storing of the corn which Commodity Credit would receive on these loans. The Commodity Credit Corporation officials, of course, could not be certain as to the amount or percentage but they knew they would get considerable corn. The details of storage rates, handling charges, etc., were settled after negotiations and contracts agreed upon with the Commodity Credit Corporation. It is interesting to note that special rates were granted the government, namely, a 7c storage rate for a twelve months period and 1c handling charge. This was little more than half the regular rates and was granted by the terminals because the discussions contemplated the general use of terminal facilities and a large volume, and also because it was rumored that there were some individuals in the Department of Agriculture who favored the building of terminals by the Government to compete with existing facilities.

Then too, most terminal operators tendered their available space as of August, 1939, on a special Commodity Credit form for that purpose.

In addition, officials of the Commodity Credit were in constant touch with the officials of the Terminal Elevator Grain Merchants' Association and with terminal elevator operators in the various markets constantly checking as to the available room and fearful that there would be insufficient space in terminals for the corn they expected would be handed them by the farmer.

Rumors Begin

▲ Sometime in July or August there were rumors concerning the purchase of steel bins for the storage of this corn at country elevator points. The Government made several purchases of bins and in view of the fact that there was no specific announcement it was assumed that these steel bins were to be used for the overflow of corn which the country and terminal elevators could not store. To start with, in view of the fact that there was no specific announcement on the part of the Government and on account of the attitude and concern of Government officials about the amount of terminal elevator space, it was naturally assumed that in the storage of corn the following would be the procedure:

1. Farmers would have an opportunity to reseal on the farm as outlined previously.
2. Country elevator space would be used to capacity.
3. Terminal elevators would be next in line as long as there was available space in them.
4. Steel bins might have to be used for any overflow.

It is rather significant to consider that the Commodity Credit Corporation was transferred on July 1, 1939, from Jesse Jones' Reconstruction Finance Corporation to the Department of Agriculture by executive order of President Roosevelt, and this may have had a great deal to do with the change of policy in the order of storing corn which followed shortly after.

Sometime in August it became apparent from press releases and information from Government officials that the Commodity Credit Corporation under the direction of Secretary Wallace and others intended to use steel bins ahead of grain terminal elevators in the storage of corn.

On September 1, 1939, H. M. Stratton, President of the Terminal Elevator Grain Merchants Association, wrote a letter to J. W. Goodloe, Vice President of the Commodity Credit Corporation, again urging the use of terminal elevators and outlining the fact that in his opinion there was ample space in terminal elevators for the storage of any amount of corn the Commodity Credit Corporation might reasonably expect to get from the farmers.

Case Restated

▲ By the middle of September it became certain that the terminal elevators were going to be overlooked in the storage of this corn and at that time a committee of the Terminal Elevator Grain Merchants Association made a trip to Washington and following conferences with various Governmental officials first, finally had an interview with Secretary Wallace. This interview with Secretary Wallace was confirmed in a letter to him under date of September 20, 1939, signed by H. M. Stratton, President of the Terminal Elevator Grain Merchants Association, again restating the case of the terminal elevators and outlining

Corn in Cans Means Empty Elevators . . .

the fact that there was 130,000,000 bushels of space available for corn in country elevators, sub-terminals and terminals.

It might be fitting right here to state that ever since the corn started to move, in September and October, 1939, there has been some 70,000,000 to 80,000,000 bushels of vacant space in terminal elevators in Omaha, Kansas City, Minneapolis and Duluth-Superior.

The conference with Mr. Wallace and others developed nothing. The terminal operators were simply told that the philosophy of the ever-normal-granary demanded that this corn be held at country points in these steel bins. However, later developments and discussions with high Government officials in the Department of Agriculture and the Triple A would now lead one to believe that there is no objection to a certain amount of the ever-normal-granary stocks at terminal points, and of course as far as the ever-normal-granary is concerned it is well to remember that a lot of the corn was resealed or held by farmers in their own names in country elevators totaling about 190,000,000 bushels and the new corn under loan (that is the corn maturing in the fall of 1939) as of this writing totals 229,000,000. So there is certainly a substantial amount of corn in the ever-normal-granary right on the farm aside from that stored in steel bins erected on railroad right-of-ways.

Reason to Believe

▲ There is very good reason to believe that the Government bought the steel bins to take care of the overflow of corn which they expected to get over and above what they could store in both country and terminal elevators. At the time they put in orders for the steel bins (prior to the war) they expected that farmers would turn over to the Commodity Credit Corporation much more corn than was finally delivered. War and other factors caused the farmers to reseal more of this corn on the farm than the Government originally anticipated, but the Government had already made commitments for the steel bins so the terminal grain operators "took the rap" for the Agricultural Department's miscalculation. One can well imagine the uproar there would have been had the Government purchased some seventy-five million bushel capacity of steel bins and left them empty, which would have been the case had they followed the plan we in the grain trade think was their original intention, namely, to use the steel bins for the overflow which country and terminal warehouses could not handle.

It is also a moot question as to whether this corn is better located at the country points or at terminal markets like Omaha and Kansas City, where it is available for quick shipment west into consuming areas; and in Minneapolis and Duluth-Superior, for certain consuming areas in the East, down the Great Lakes, and for export.

As to costs: the approximate cost of steel bins to the Government amounted to 9c per bushel of capacity. The average freight rate would be about 3c per bushel of capacity and the County Committees that handle these steel bins allow 3c a bushel to the country elevator for erecting them, weighing the corn, and filling them—making a total of 15c per bushel. Then, of course, someone will have to pay to take the corn out, weigh it over the country elevator scales and load it into railroad cars or trucks. Estimating this at another 3c per bushel it brings the total to 18c per bushel. This as against the 7c storage and 1c handling charge for terminal elevators, which makes a total of 8c for a twelve-months period agreed on with the Government, and this low rate includes full insurance. So, the corn could have been stored for two years in well equipped terminal elevators at

(Continued on page 14)

Steel Bins . . .

less than the cost involved in the use of these steel bins. Then, of course, there are many other costs that should be figured against the steel bins, such as interest on the investment, the work of a large army of conservation committees, inspectors, County Triple A offices, etc., which would be impossible for even the Government to compute.

Another Subject

▲ Another subject for consideration is the question as to how the corn will keep in these steel bins, without the supervision which a well-conducted elevator gives. There is a wide difference of opinion on this point although apparently Government officials believe that the corn so stored will keep in good shape. They may be wrong, however; but whether they are right or wrong there certainly is a greater risk involved than if the corn were stored in an elevator. It definitely is an additional hazard, no matter what the final outcome may be, for the reason that it is an untried experiment on such a large scale.

Of course, it is true that the corn put in these steel bins in the fall of 1939 had been carried over on the ear from the fall of 1938 and presumably was without mixtures of new corn. It went direct from the farm into the steel bins and, therefore, escaped the risk of having new corn mixed with it in country elevators. Then too, the great popularity and increased percentage of Hybrid corn has meant a better quality for storage.

This program has become one of grave concern to the railroads and to railroad labor. They are very naturally definitely interested because there is no question but what the storage of this large supply of corn in steel bins affects tonnage on the railroads and definitely plays into the hands of truckers.

Another feature of the program that is decidedly detrimental to the interests of the rail carriers and their employees is that the steel bins now used for the storage of corn moved quite generally on Land Grant rates and the corn when shipped from these bins will undoubtedly move in a like manner. We know that a considerable quantity of corn has already moved on Land Grant rates which are approximately 40% to 50% of the normal or full commercial tariff rate. This involves another type of Government competition with private grain dealers and is likewise costly to farmers with corn of their own to sell. The point is that dealers who are forced to pay full freight rates for corn moving into areas which the Government reaches with the low Land Grant rates must deduct an amount equal to the difference in freight charges from the price paid to the producer for his corn. All railroads

Will They Be Used Next Year? . . .

suffer from this situation. Those carriers subject to Land Grant rates must carry this freight for the government at a price below cost. Competing railroads are likewise obliged to meet the low Land Grant rates or forego handling this traffic.

▲ This year the Government has been very fair with the country elevator trade and has patronized the country elevators first and used the steel bins after the country elevators were filled. No one knows what the situation might be next year or in the future years, provided there is only enough corn to fill either the steel bins, or the country elevators. In that event, with the Government owning the steel bins, there is considerable suspicion that it would fill these first and leave the country elevators without the storage. This question has been put to several high Government officials in the Department of Agriculture, but no definite answer has been received.

The steel bins are now owned by the Triple A, but under the present intentions the ownership is to pass to the County Committees of the Triple A through an accrual of credit out of storage of the corn, so that eventually, in two or three years, the bins will become the property of the local County Committees through these earnings. Thus the Committees would be in position to engage in the grain business insofar as these facilities would allow.

Government Corn

▲ Bear this in mind! The corn in these steel bins is not farmers' corn. It is not loan corn. It is the property of the Commodity Credit Corporation. It belongs to the Government. The farmers have no interest in it any more and, therefore, it makes absolutely no difference to the farmers in the matter of their loans as to whether this corn is stored in country elevators, in terminals, or in steel bins. All of it could have been stored in terminals without affecting the farmers in any way. There is the guess, of course, that the Government wants the corn in steel bins at country points staring the farmers in the face with an apparent huge surplus so they will be more ready to accept acreage reduction in corn planting.

There is nothing in the Triple A legislation which requires that corn be stored in these steel bins. This is strictly a matter of administration of the present Act.

We in the grain trade have reason to believe that prominent leaders in the farm organizations such as the American Farm Bureau Federation, the Farmers Union, and the Grange, as well as cooperatives engaged in the grain business, are opposed to the use of steel bins leaving terminal elevator space vacant. We understand that they have even voiced their disapproval to the Department of Agriculture.

Country elevators, terminals and the grain trade generally speaking have not opposed the loan programs designed for the benefit of farmers. On the contrary they have endeavored to cooperate in making them effective. They have acceded to the Government's demands for special rates, and generally are on record as attempting to make the Government's agricultural program helpful to the farmers, even though there are individuals in the trade who do not agree with the program.

It cannot be charged fairly that trade criticism of the manner in which the corn storage program has been administered is based solely on selfishness. The Government could have saved the large sum of money spent for the purchase, erection, filling and maintenance of these steel bins if it had utilized the terminal storage space offered to it in good faith at exceedingly low rates. We feel the corn itself, in which the Government has a stake amounting to many millions of dollars, would have been in safer storage and in better market position. The empty warehouses would have received business they had a right to expect and there would have been more employment for their crews. There would have been additional revenues for the railroads and their employees, as well as for samplers, inspectors, and others whose work depends upon terminal grain receipts.

SUPERS' PARADISE

▲ Our next monthly meeting of the Chicago Chapter of the Society of Grain Elevator Superintendents is to be an inspection tour of the Glidden Company's new elevator and soybean extraction plant on July 2nd. This tour will start at 3:30 DST and wind up with a soybean dinner, etc. The new elevator is a supers' paradise.

★

Accident Record Slightly Improved

▲ An improvement of 5% in the frequency rate of industrial accidents has been announced by the National Safety Council after a detailed study of the records for the year of 1939. Severity rates were down 10% to a 1939 figure of 1.42, while the new frequency figure for all industry was 11.83.

The frequency rate is defined as the number of lost-time accidents per one million man-hours worked while severity is figured as the number of lost-time days per one thousand man-hours worked.

For the food industry the frequency rate was down only 3% from the year before, standing at 16.70, nearly 5 points above the figure for all industries. Severity figures for the industry was down to 1.21, a little better than the 1.42 for all industry and an improvement of 5% over 1938.

In reviewing the same year the Department of Labor reported that in 1939, 16,000 persons were killed, 106,000 were permanently injured and 1,407,000 suffered temporary injuries while at work. The largest number of injuries occurred on the farm, where 4,300 were killed and 13,000 permanently disabled.

Loading Ships at St. John . . .

(Continued from page 6)

that it is moved to the several hatchways as the ship requires the grain. One unusual feature here is the fact that the spouts going down from the loaders are all telescopic. They can be as short as 20 feet and as long as 50 feet. This extension of the spout is controlled by the man in the loader. The telescopic spout is necessary because at Saint John the tide today has a rise and fall of 22 feet, and on the spring tides a little later we will get as much as 28 feet. That takes place on the 24th of this month. So you can see that it is necessary to have some special arrangement to take care of the fact that the ship moves vertically through quite a distance.

The Usual Tide

▲ You must not feel that such a variable tide is entirely unusual because at the port of Bristol, which does a very good business in England and is in the grain business, there is a variation in the tide of about 40 feet. On the conveyors we are able to put in an average of about thirty thousand bushels an hour to each berth, so that we have plenty of capacity for delivering.

The largest cargo that we loaded out to a single ship was the SS. Strinda which took out 505,000 bushels. Normally tramp ships take a matter of 300,000 bushels and we are able to deliver this quantity in a matter of fourteen hours. This does not mean that the ship gets away in fourteen hours from the time that it comes in because most ships coming in for grain, although they take a full cargo, have to put in the necessary boards and prepare their holds for the handling of grain. You must understand that ocean ships that come to take grain are not built specially for grain handling but are cargo ships with normally at least four holds, and even after the ship has each hold filled it is necessary to trim the cargo so that not only will it be evenly distributed but also that it will be held in place if the ship happens to encounter rough weather. Lloyd's inspector, on behalf of the insurers, insists that the cargo be properly trimmed. To do this the ship has to bag a certain amount of grain and place it along with flashboards in such a position that the lading will not shift in heavy weather.

We sometimes have a number of grades in the one ship and it is the custom to have burlap cloth which is spread on top of one grade and then the other one loaded upon it. The burlap is supposed to keep the various grades separate. In most ocean-going ports the grain shovellers work in the hold while the grain is running but in Saint John the grain trimmers won't do that. They insist on stopping the delivery of grain while the ship is being trimmed. There was an occasion in the past when one of the shovellers was buried in the grain and that is one of the reasons why they refuse to trim the ship while the grain is being delivered. This year we have had 13 grades of wheat to handle and sometimes all told we have had as many as forty grades. Naturally that makes it embarrassing for the elevator operator. With the number of small bins that we have there is not very much difficulty up to twenty grades but after that we have some embarrassment which slows up the delivery. We handle through Saint John the usual grain products—corn, including South American corn which comes into our country at times; buckwheat; bulk soya beans; peas; barley, oats and flax.

The Dust Problem

▲ There is one feature in Saint John that perhaps you do not meet and it is this—that we are not allowed to sweep the dust out into the harbor because the harbor authorities won't let us pollute the waters there. We could, of course, make some arrangement so that in the conveyors all the dust would be removed but unless some adjustment were made we could not afford to pay for the dust being weighed in, be at the expense of taking it out and loose the volume when the grain is loaded out. Normally it is not bad but, of course, you know that there is a distinct hazard in connection with it.

We had several years ago one explosion in our elevator which blew off the top of one of the bins and destroyed the corrugated iron head house of that elevator. There was no fire resulting as apparently the explosion escaped to the air practically at once. The investigation developed that the explosion was due to the fact that there was a broken steel fork tine which when going through the discharge pipe struck a spark igniting the explosive mixture in that particular bin.

Opening Date

▲ Just the minute that the port of Montreal is closed, and there is a fixed date for this when insurance on ships in the St. Lawrence runs out, precisely that day the port of Saint John is going full force because the ships promptly arrive there and expect to get their full cargo and get away with the usual dispatch, so we immediately start business off from the first day at maximum capacity. On the other hand the end of the season takes place over night.

I presume you know that in Canada we have some 5,679 country elevators with a capacity of over 189 million bushels and from these elevators the grain goes to the Pacific Coast, to Fort William, Port Arthur and to the Atlantic ports like Saint John. Fort William has a capacity of over 92 million bushels whereas all those on the

Capacity . . .

Pacific have a capacity of 22 million bushels. Then there is Churchill—two and a half million bushels—and at Saint John we have two and a half million bushels, with a small half million bushel capacity elevator on the east side. Halifax has also one elevator with two berths serving it. The Pacific elevators, all told, handle about 53 million bushels, whereas Fort William-Port Arthur handle about 226 million bushels.

The Canadian Pacific Railway Company owns one elevator in Saint John and the Dominion Government owns the other. For economical operation the railway operates both elevators under an agreement with the Federal Government.

Wheat Boards and Pools

▲ Caesar Augustus, whom I mentioned, was the first man to institute a wheat board. He did the best he could but his government collapsed—probably not because of the wheat board only. In Canada's experience, certainly the wheat pools added a very heavy load—first to the provinces and to the dominion. Cora Hind, the agriculturist editor of the Winnipeg Free Press, is the authority for saying that the wheat pools were largely responsible for the collapse of prices for Canadian wheat. May I say too that there never has been any world overproduction of wheat. No doubt there has been too much wheat in certain places and it was impossible to move it at a price.

At the same time there have been great numbers of human beings who were anxious, almost to the point of starvation, to obtain wheat. At the moment there is this peculiarity in the world wheat situation. Due to the fancied need for self-sufficiency in the face of war, European nations have taken out their olive trees and grape vines and planted wheat. Economically this is all wrong because it adds to the cost of the wheat above what it could be produced for in, say, Canada or the United States. This added cost has to be borne by the people of those countries and just to that extent they handicap themselves in their economic life. The economic ideal for production, not only of wheat but also of all materials, is to arrange that the countries that can produce most cheaply should be permitted to do so. For instance, Canada and the United States should produce wheat and those countries that can produce olives, grapes, etc., should devote their acreage to those products. This presupposes a free interchange of goods between nations and the idea of national self-sufficiency besides being intolerable is economically wrong. This ideal will be reached in the world—
When danger's troubled night departs
And the Star of Peace returns.

Chicago Supers Hear Engineer

▲ A. H. Nuckolls, Chief Chemical Engineer of the Underwriters Laboratories, addressed the regular meeting of the Chicago Supers' Society at the Atlantic Hotel on June 4th. Mr. Nuckolls explained the methods used in the conduct of the dust explosion tests now in progress at the Argo Plant of Corn Products Refining Company.

Some 35 members were present to hear the discussion of the Class 2, Group G recommendations as laid down by the Underwriters Laboratories that preceded the report on the progress of the dust explosion experiments.

Chicago Chapter will meet again on July 2nd at 3:30 in the afternoon to make an inspection tour of Glidden Company's new soybean elevator and extraction plant on W. Moffat Street.

★

Malt Institute Meets in July

▲ Malt Research Institute will hold a Field day and inspection tour of the barley plots on Hill Farm of the College of Agriculture, University of Wisconsin, in Madison, July 12th.

The program offers an opportunity to observe the different varieties of barley growing in the plots and to discuss barley problems with representatives of the United States Department of Agriculture and of the University. A noon luncheon will be served at Hill Farm, three miles west of Madison on Highway 12.

SUPER WILL WED

▲ Emil Buelens, most eligible bachelor of the Chicago Supers' Chapter, will be married on August 17th .

Mr. Buelens is production manager of the Glidden Company's Chicago plant which has just opened a new soybean elevator and extraction mill.

★

Kansas City Group Hears Safety Talk

▲ Twenty-two members and associates of the Kansas City Chapter of the Supers' Society met May 21st to hear W. W. Williams, vice-president of the Industrial Division of the Kansas City Safety Council, talk on safety and safety facts.

Mr. Williams illustrated his talk with anecdotes and incidents as well as a few timely jokes. He refrained from reading any long list of statistics.

A suggestion for a picnic meeting to be held some time in June was referred to the Program Committee under William Deegan, Continental Grain Company, for consideration, but the absence of several members on vacation caused plans to be deferred. The June meeting is scheduled for the 18th.

★

Still Loyal

▲ "I will still continue to be a loyal of your magazine," writes William J. Waller of Dearborn, Michigan.

Grain Markets Show Firmness

▲ After a drop of some 30c in the three days following War's spread into the Lowlands, grain markets seem to be recuperating much better than could be expected. Remarkable calm in the face of new reverses in world trade has caused most markets to pull the minimum-price pegs and rise a penny or two in spite of the defeat of France and the closing of the Mediterranean.

Into the middle of this calm pool the Department of Agriculture and the Wheat Advisory Board dropped a rock without forming more than a slight ripple. On July 1st the world's supply of wheat will be 250 million bushels over the record-breaking 5,459 million bushels on hand a year before. With a crop estimate of 675 million bushels—about equal to expected consumption—the United States will carry over 288 million bushels of wheat while Canada has 300 million and Argentina a surplus of 20 milion.

In Argentina, however, there are also 300 million bushels of corn waiting for shipping instructions.

New oil to further smooth the western hemisphere's grain pool seemed forthcoming in the form of an all-American cartel that would buy up surplus grain and other commodities, dispose of it as best it could. Set up by two billion United States dollars plus whatever funds other American nations could provide, the agency would be in a monopolistic position to dicker with the foreign powers in need of grain and thereby might hope to prevent the economic infiltration of especially South American countries.

That markets for surplus commodities exist in both Europe and Asia there is no doubt, but whether or not terms of trade can be worked out is a question on which no private risk-taking agency would care to bet. Almost certain for the cartel is an annual loss estimated at from 200 to 600 million dollars.

Meanwhile trade in grain markets lagged, and though prices remained steady to strong, grain brokers were spending as much time as possible sitting on the rim of the pits—resting.

★

MARYLAND WHEAT FINE

▲ From Baltimore, F. A. Peterson, Norris Grain Company, reports good prospects for the wheat and barley crops.

"Was out in the country last week," he writes, "and the wheat and barley look fine. Barley will be cut this week but wheat has about three weeks to go. Corn is up 8 inches and has a good stand."

Cracked Kernels

OBLIGING

Mistress: Mary, we have breakfast promptly at 8:00 A. M.

New Maid: All right, Ma'am, if I ain't down don't you all wait."

★

SELF-DEFENSE

"Did I ever tell you how I tried jiu-jitsu on a burglar?"

"No."

"Well, I got hold of his leg and twisted it over his shoulder. Then I got hold of his arm and twisted it round his neck, and before he knew where he was I was flat on my back."

★

BEHIND A BUSH

"Yep, I had a beard like yours once, but when I realized how it made me look I cut it off."

"Well, I had a face like yours once and when I realized that I couldn't cut it off, I grew this beard."

★

BEG YOUR PARDON

Mr. Bronson died very suddenly and an important business letter was left unmailed.

Before sending it off, his secretary, who had a passion for explanatory detail, added the following postscript before Mr. Bronson's signature:

"Since writing the above I have died."

★

NOTHING VENTURED

A little boy went to a very nice shop on the Avenue to try on a new suit, being taken by his sister, a regal lady, graduate of Vassar. The youngster giggled and squirmed as the tailor, a young, brisk, well-dressed fellow, nimbly made the marks on his suit with chalk. Having entered fully into what he thought was the spirit of the occasion, the boy suddenly looked up and said to the tailor, in a confidential tone: "If you want to tickle my sister, try her stummick."

SNOOPER

THE BOILER-ROOM CAT

"Friction makes your power belts do their jobs, but friction among the personnel prevents the plant from running smoothly."

HIS VIEWPOINT

Old lady to her chauffeur's little son: "Do you know who I am?"

Small boy: "Yes, you're the old lady that runs about in my daddy's car."

★

BIMELECH AGAIN

Wife: "I've put your shirt on the clothes horse."

Jim: "What odds did I get?"

★

EMERGENCY

Arriving at a strange hotel, a fussy woman thought she'd better know where the fire escape was. So she started exploring. During her tour, she opened a door and found herself in a bathroom occupied by an elderly gentleman.

"Oh, I'm sorry!" she twittered. "I was looking for the fire escape."

Continuing her search, presently she heard the pad of bare feet behind her and a shout made her turn. It was the elderly man, clad in a bath towel.

"Wait a minute!' he gasped. "Where's the fire?"

A NEW STYLE

"Say, Pete, your girl looked quite tempting in that biblical gown she wore last night."

"What do you mean, biblical gown?"

"Oh, you know, sort of lo and behold!"

★

DEPENDABLE

Prospective Passenger: "And you will bring us back safely?"

Aviator: "Have no fear, Ma'am. I've never left anyone up there yet."

★

TEMPUS FUGIT

"Are you the girl who took my order?" asked the impatient gentleman in the cafe.

"Yes, sir," replied the waitress politely.

"Well, I declare," he remarked, "you don't look a day older."

★

NO CHANGE

Historians tell us that women used cosmetics in the Middle Ages. For that matter, women in the middle ages still use them.

★

BOBTAILED INFORMATION

A statistic reveals that millions in this country have telephones but no bathtubs. It is not explained what they are caught in when the phone rings.—Los Angeles Times.

★

IN THE TRAP

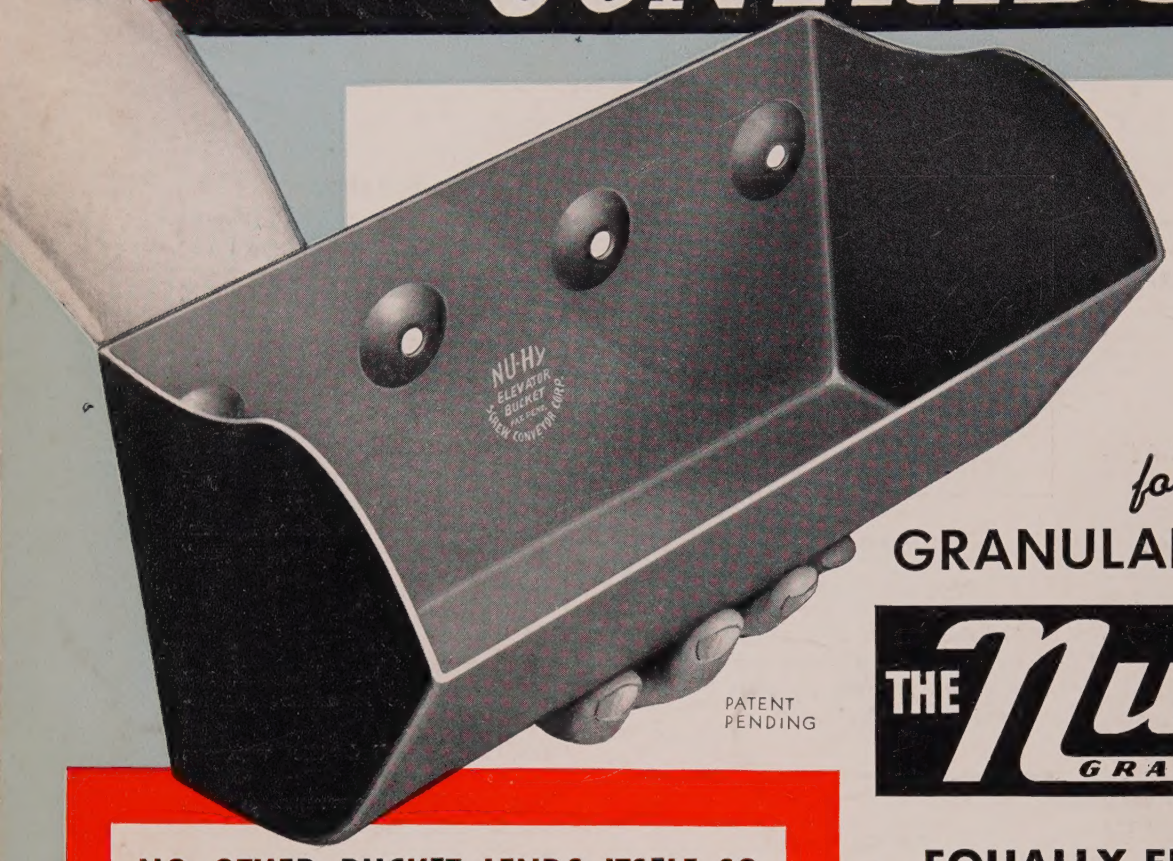
Sandy was not one for many words but his desperation had grown each night as he sat unable to tell the bonny lass of his strictly honorable intentions.

"Ye will recall I wa' sitting here last Sabbath? And do you mind me being in this same spot Monday nicht? Aye and Tuesday nicht, and Friday nicht?"

"Aye, that's so, Sandy."

"Weel, lass, this is Saturday nicht and here I am again. Now, come Maggie, tell me, don't ye begin to smell a rat?"

Still another CONTRIBUTION



PATENT PENDING

A NEW HIGH CAPACITY ELEVATOR BUCKET *for* GRAIN *and* GRANULAR MATERIALS

THE Nu-Hy GRAIN BUCKET

NO OTHER BUCKET LENDS ITSELF SO IDEALLY TO CONTINUOUS SPACING ON BELT. PICKUP AND DISCHARGE ARE UNIFORMLY EFFICIENT WHETHER BUCKET IS SPACED OR MOUNTED CONTINUOUS

BUCKETS MOUNTED CONTINUOUS

MINIMUM SPACING OF BUCKET HANDLING GRAIN

Size Projection of Bucket	Spacing on Belt Bucket Centers
4 inches	4¼ inches or more
5 "	5¼ " " "
6 "	6½ " " "
7 "	8 " " "

The most popular spacing on new installations is size projection of bucket plus 2", which has proved very conservative.

ONE-PIECE . . . SMOOTH STRONG WELDED CONSTRUCTION

"Nu-Hy" Buckets are of heavy gauge, one-piece welded construction, which eliminates all bands and overlaps. Thus streamlined, all pick-up and discharge obstructions are avoided. The Buckets are perfectly smooth inside and out and while stronger and more wear resistant, are light in weight.

. . EQUALLY EFFICIENT at LOW, INTERMEDIATE or HIGH SPEEDS

The "Nu-Hy" is all that its name implies . . . a bucket that gives a "New High" standard of performance regardless of speed, delivering greater elevator capacities than any other bucket in the field.

The design of the "Nu-Hy" is revolutionary, scientifically determined by extensive research. The unique bottom and positioned high front lip, which, acting in unison with the high sweeping sides raised above the strike line, produces efficiencies in pick-up, discharge and capacities heretofore impossible to attain.

"Nu-Hy" Buckets are absolutely guaranteed to deliver 10% to 50% more capacity than any other bucket of same size when operated under identical conditions. This unqualified guarantee is made possible through our years of research and development, plus perfect records of performance in numerous installations.

Larger capacities are available by closer spacing of buckets on belt and still further increases are available by speeding up the belt. (While increasing the speed of the belt oftentimes requires head alterations, the "Nu-Hy" Bucket reduces this requirement to a minimum).

Write for a sample Bucket and our capacity analysis sheet, which will enable us to submit guaranteed recommendations. No obligation.

Screw Conveyor Corporation
707 HOFFMAN ST. HAMMOND, IND.
SCREW CONVEYORS SCC ELEVATOR BUCKETS
TRADE MARK REG. PRODUCTS U.S. PAT. OFFICE